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REMARKS

The present application was filed on June 2, 2000 with claims 1 through 33. Claims 1 through 33 are presently pending in the above-identified patent application.

10 In the final Office Action, the Examiner objected to the specification as having a typographical error and claims as failing to provide proper antecedent basis for the claimed subject matter. The Examiner rejected claims 1, 6-9, 13 and 30-31 under 35 U.S.C. §103(a) as being unpatentable over Srinivasan et al. (IEEE Transaction on Signal Processing, vol. 46, April, 1998), in view of Johnston (United States Patent Number 5,481,614), rejected claims 2, 5, 10-12, 14 and 17-19 under 35 U.S.C. §103(a) as being unpatentable over Srinivasan et al. in view of Johnston, and further
15 in view of admitted prior art, and rejected claims 3-4, 15-16, 20-29 and 32-33 under 35 U.S.C. §103(a) as being unpatentable over Srinivasan et al. in view of Johnston, and further in view of well known prior art.

Formal Objections

20 The disclosure was also objected to because of the following informality: the phrase “does need not need to be transmitted...” on page 6, line 8 requires appropriate correction. The Examiner indicated that the change was not included in the Marked Version of the Specification. The disclosure was previously amended to correct the indicated typographical error and Applicants respectfully request that the Examiner’s objection be withdrawn. Please see Marked Specification, page 6, line 10.

25 The Examiner also objected to the specification as failing to provide proper antecedent basis for the claimed subject matter. Regarding claim 7, the Examiner asserts that the limitation of “an image signal” and “visibility threshold” lacks antecedent basis in the specification. The Examiner indicated that the change was not included in the Marked Version of the Specification. The disclosure was previously amended to provide proper antecedent basis for the indicated limitations. Applicants
30 respectfully request that the Examiner’s objection be withdrawn. Please see Marked Specification, page 7, lines 23-25.

5 Independent Claims 1, 13, 20, 25 and 30-33

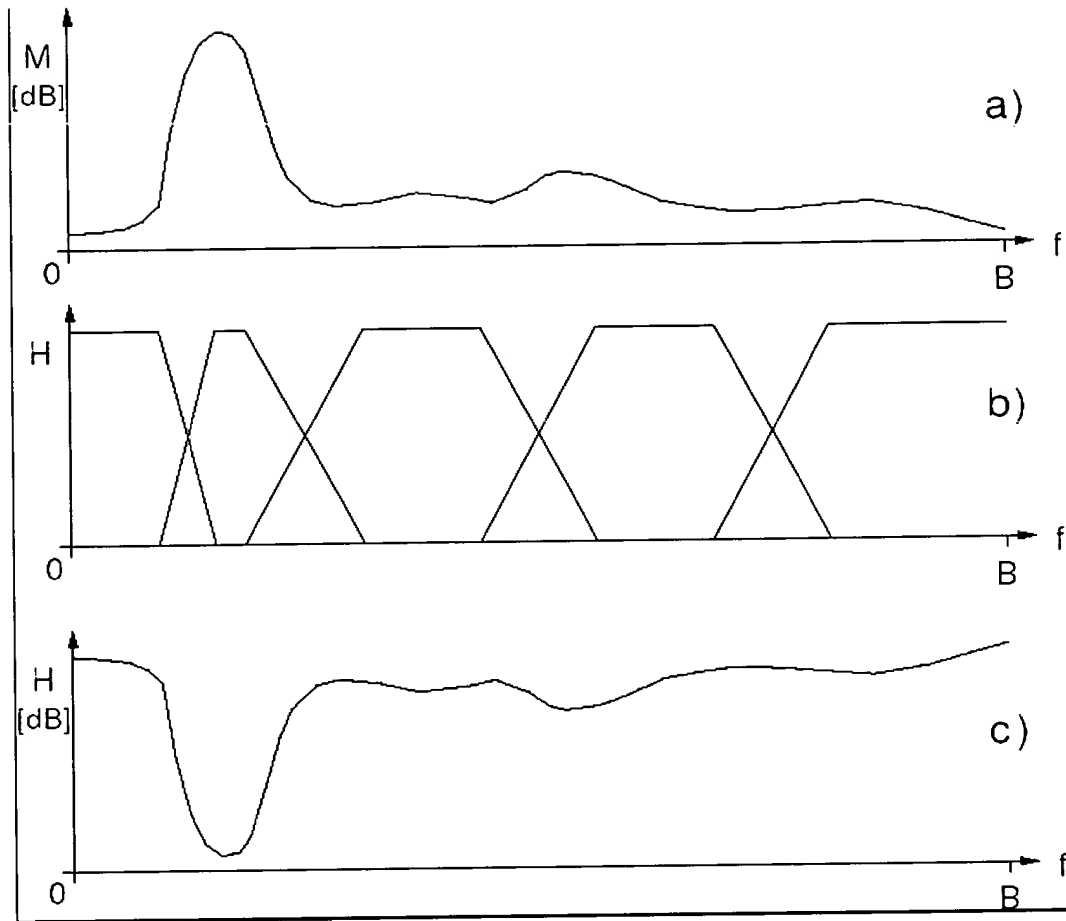
Independent claims 1, 13 and 30-31 were rejected under 35 U.S.C. §103(a) as being unpatentable over Srinivasan et al. in view of Johnston and claims 20, 25, and 32-33 were rejected under 35 U.S.C. §103(a) as being unpatentable over Srinivasan et al. in view of Johnston, and further in view of well known prior art.

10 Regarding claim 1, the Examiner asserts that Srinivasan teaches an adaptive filter producing a filter output signal and having a magnitude response that approximates an inverse of the masked threshold. Applicants note that Srinivasan teaches the use of a filter bank, known in the art to be composed of filters with fixed (i.e. non-adaptive) impulse responses. See, Fig. 1. Srinivasan teaches to split the input spectrum into two or more bands. See, Fig. 2 and related text on page 1087.

15 In the current Office Action, the Examiner asserts that the “magnitude of the output of sub-band of the filter bank {in Srinivasan} is ‘adaptive’; and discloses ‘the magnitude values of the frequency domain representation are converted to a critical band representation” and “it is a convex combination of the noise-masking-tone and the tone-masking-noise thresholds.” citing page 1087, left column. Further, the Examiner asserts that “the higher the masking threshold, the lower value of the
20 output magnitude needs to be encoded, which is interpreted as the claimed “that approximates an inverse of the masked threshold.”

Applicants maintain, however, that Srinivasan does not disclose or suggest “said adaptive filter producing a filter output signal and having a magnitude response that approximates an inverse of the masked threshold,” as required by independent claims 1, 13, 20, 25 and 30-33. In
25 particular, applicants note that the masked threshold of Srinivasan is shown in FIG. 4c on page 1089. In addition, as shown in FIG. 1 (page 1086), Srinivasan uses a filter bank having a plurality of filters (one per frequency band) with fixed (i.e. non-adaptive) impulse responses and splits the input spectrum into two or more bands. Therefore, the subband filters have band pass characteristics in order to divide the signal into the appropriate frequency band. Srinivasan uses a cascaded structure of
30 two-band filter banks, each splitting its input spectrum into two halves. What they now make adaptive is the structure of the resulting filter bank, i.e. the number of cascades. The variation only affects the resulting frequency resolution, but not the overall magnitude responses. }

The following illustration helps to illustrate the difference between Srinivasan and the claimed invention:



In the above Figure, Figure (a) illustrates a masking threshold similar to the "Threshold" in Fig. 4 of Srinivasan (shown here in a dB scale). Figure (b) illustrates the schematic frequency responses of the five subband filters of a filter bank structure as shown in Fig. 5a. Thus, Figure (b) illustrates the magnitude response of the "filter bank" shown in Fig. 1 of Srinivasan.

Finally, Figure (c) illustrates the frequency response of a pre-filter, which would approximate the inverse of the masking threshold (again in a dB scale), as required by the claims of the present invention.

Clearly, the "filter bank" of Srinivasan is not an "adaptive filter having a magnitude response that approximates an inverse of the masked threshold," as required by the independent claims of the present invention. Again, the magnitude response of the "filter bank" of Srinivasan (shown in Figure (b)) above) is not an inverse of the masked threshold (shown in Figure (c) above).

5 It is further noted that each subband is separately quantized and coded for transmission.
The individual subbands are not merged together at the encoder.

Dependent Claims 2-12, 14-19, 21-24 and 26-29

10 Dependent claims 6-9 were rejected under 35 U.S.C. §103(a) as being unpatentable
over Srinivasan et al., in view of Johnston, claims 2, 5, 10-12, 14 and 17-19 were rejected under 35
U.S.C. §103(a) as being unpatentable over Srinivasan et al. in view of Johnston, and further in view of
admitted prior art and claims 3-4, 15-16, 21-24, and 26-29 were rejected under 35 U.S.C. §103(a) as
being unpatentable over Srinivasan et al. in view of Johnston, and further in view of well known prior
art.

15 Claims 2-12, 14-19, 21-24 and 26-29 are dependent on claims 1, 13, 20, and 25,
respectively, and are therefore patentably distinguished over Srinivasan et al. and Johnston, and
admitted and well known prior art, alone or in any combination, because of their dependency from
amended independent claims 1, 13, 20, and 25 for the reasons set forth above, as well as other
elements these claims add in combination to their base claim.

20 All of the pending claims, i.e., claims 1 through 33, are in condition for allowance and
such favorable action is earnestly solicited.

 If any outstanding issues remain, or if the Examiner has any further suggestions for
expediting allowance of this application, the Examiner is invited to contact the undersigned at the
telephone number indicated below.

 The Examiner's attention to this matter is appreciated.

25 Respectfully submitted,



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